



Amsat Presentation 2004

Cajun Advance Satellite Exp.

Satellite from the Bayou

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Overview

Mission

Satellite

Amsat Contribution

Amsat Return on Investment

Amsat Future Work

FCC Mandate

Conclusion

Mission

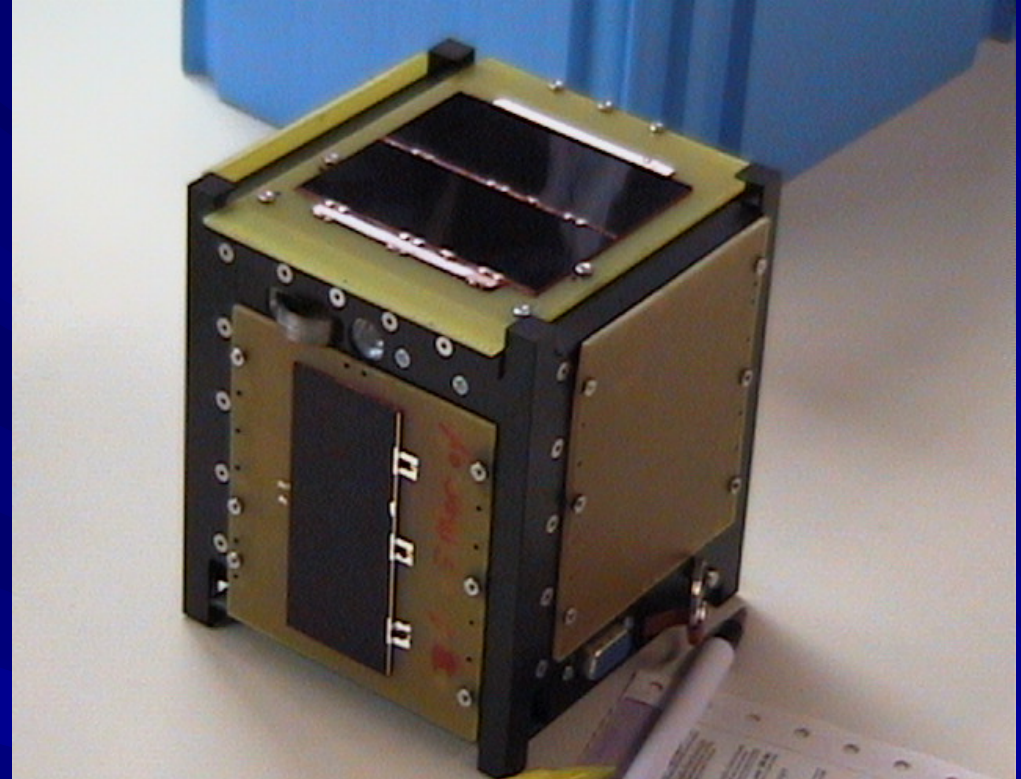
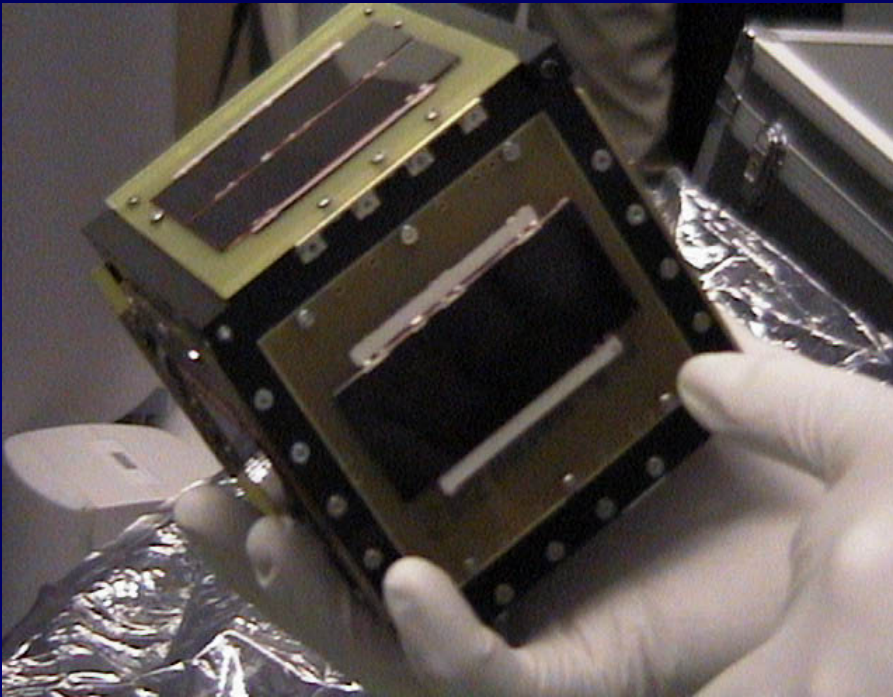
To transform students into Professional Engineers

Skill Set to accomplish Mission:

- Manage large projects over 18 months
- Design: Mechanical Structures
- Design: Power Systems constrained by weight & Surface Area
- Design: Communications Systems:
 - Transceivers that are space qualified
 - Antenna Systems
 - Link Budgets
 - Transmission Protocols
 - Ground Stations
- Marketing / Fund Raising
- Interface with News Media

Satellite

Cube Sat



Description:

- Size: 4 in. x 4 in. x 4 in.
- Weight: < 2.1 lbs
- Peak Power: 2 Watts
- Orbit: LEO; Approx. 400 miles like Echo

Satellite (continued)

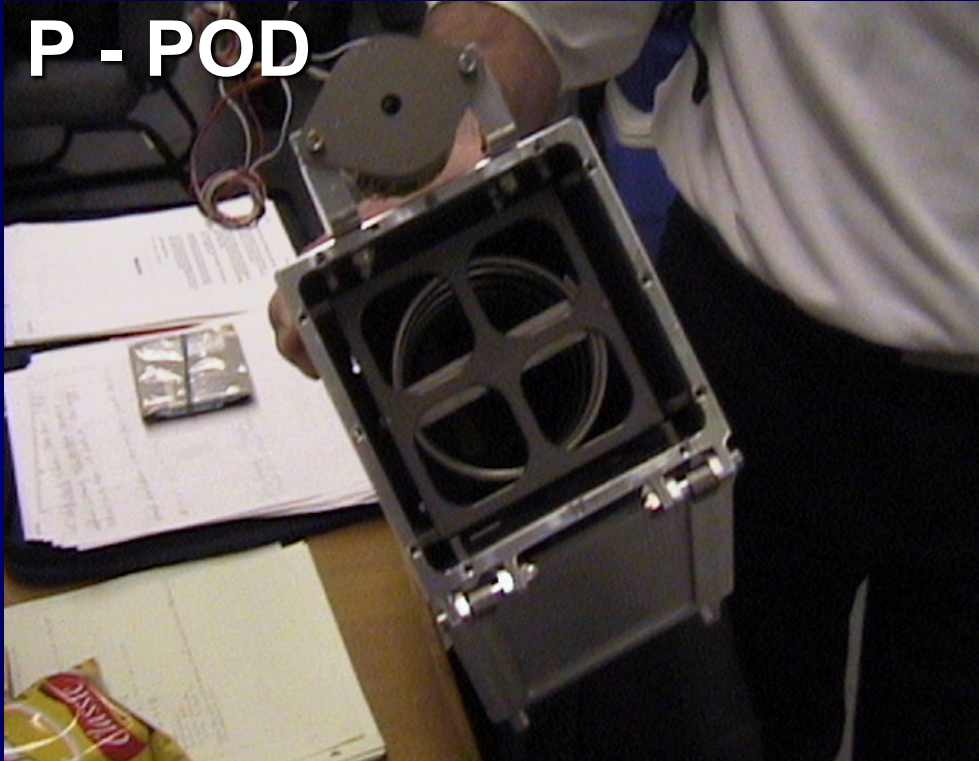
- Protocol: 1200 / 9600 baud AX.25
- Beacon: CW
- Solar Cell: Dual Junction 19% Efficient
- Battery: Lithium Ion
- Attitude Control: Passive Magnet

AmSat / Amateur Contribution

- Amsat through the IARU is the frequency coordinating agency
- Led the industry in the '90s with the MicroSatellite
- Instrumental in creating demand for low cost multimode duplex transceivers
- Developed several tracking programs
- Developed low cost TNC's
- Developed low cost modems like G3RUH & Soundcard modems
- Created demand for antennas, rotators, and rotator controllers used in ground stations
- APRS

Contributions by Bob Twigg / Cal Poly

P - POD



- Allowed amateurs to get hardware in orbit.
- Allowed critical mass for different organizations to get launch authority attention.
- Reassure primary satellite owners & launch authority we won't blow up their project.



Return on Investment

Next Generation AMSAT



- Opportunity to fly payloads.
- Single Chip Radios
- Single Chip TNC
- Meet FCC Requirements

Return on Investment



Next Generation

Amsat Future Contributions

- Enthusiastically endorse the Educational Satellite Community
- Help in the data collection effort with vast global ground stations.
- Lead in the development of data collection protocols to make data collection easier.
- Generate Ideas for Payloads.
- Develop new and more efficient forward error correcting codes
- Develop more efficient satellite access methods

Amsat Future Contributions



Data Collection Networks



FCC Mandate

Rule 97.1

(b) Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.

(c) Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communication and technical phases of the art

(d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.

(e) Continuation and extension of the amateur's unique ability to enhance international goodwill.

Conclusion

As tinkers, playing Satellite is FUN!

